

RELATIONSHIP OF CERVICAL SCORE TO OUTCOME OF LABOUR

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SUMMARY

The relationship of cervical score to outcome of labour was assessed in three hundred cases. It was seen that cervical score is definitely of value in cases of induction of labour but had no role in cases of well established labour.

Introduction

In recent years increasing attention has been paid to the functional significance of the cervix during child birth. For determining the cervical inducibility various scoring systems have been evolved by Calkins (1941), Bishop (1964), Field Scoring Index (1966) and Burnett (1966). In our present study a modification of Bishop Score by Ulmsten *et al* (1982) has been used. We tried to:—

- (i) test the prelabour evaluation score as a useful index of inducibility
- (ii) assess the predictive value of such type of score to the duration of labour in induced cases
- (iii) formulate a regime for allotting various methods of induction depending on pre-induction score to make the method cost effective
- (iv) predictability of such score in cases with established labour to total duration of labour.

Material and Methods

Three hundred cases admitted to Obstetrics Ward of Swarup Rani Nehru Hospital were studied. In all these cases relationship of cervical score with outcome of labour was assessed.

The subjects were divided into two groups. Group I comprised of 99 cases. Group II consisted of 201 cases with spontaneous onset of labour (Table I). The following patients were not included in this study:—

TABLE I
Showing the Total Number of Cases

Group	No. of cases
Group I—Induction	99
(i) Sweeping	33
(ii) Artificial rupture of membranes	13
(iii) Oxytocin induction	40
(iv) Prostaglandin E ₂ gel	13
Group II—Labour	201
(i) Spontaneous labour	170
(ii) Premature rupture of membranes	31

- (i) A pregnancy less than thirtyfour weeks.
- (ii) Age less than 18 years and more than 35 years.

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Accepted for publication on 5-1-89.

- (iii) Abnormal lye or presentation.
- (iv) Multiple pregnancy.
- (v) Bad obstetric history.
- (vi) Antepartum haemorrhage.

A detailed clinical history with general physical and obstetric examination was performed. Cervical score at zero hour was carried out in each patient. Scoring was done according to modified Bishop's Scoring System (Ulmsten *et al* (1982)).

Observations were made regarding admission/induction delivery interval, mode of delivery, trial interruptions, indications for induction, improvement in cervical score, sex of the foetus, apgar score at 1 minute and 5 minutes.

For induction patients selection was done by random sampling with replacement. The methods employed for induction were:—

- (i) Sweeping
- (ii) amniotomy
- (iii) oxytocin drip
- (iv) extra-amniotic application of PGE₂ gel.

The patients were kept under observation and at regular intervals note was made of their vital signs and time of onset of labour. Per vaginal examination was repeated every four hourly and if need be earlier to monitor the progress of labour which was charted on a partogram. Trial interruption was done whenever there was any sign of foetal distress, cervical dystocia, prolonged labour. Thus active intervention was done whenever indicated.

The induction was termed as 'failed' if the patients did not go in labour within eight hours of induction.

Observations

There were ten cases of failed induction in the present study who did not go into labour within eight hours of induction. They were excluded from further observations.

Ninety per cent of patients in this study presented with cervical score ranging from 3-7. Out of the remaining total of 290 cases in present study 250 patients had vaginal deliveries and 40 cases had trial interruptions.

The relationship of prelabour evaluation score to failure of induction is in Table II.

The incidence of failed induction is 80% in scores 1-3 as compared to score 5 and above. The percentage of trial interruption was more in score 1-3 (76.19%) than 4-6 (23.80%). No trial interruptions were seen in score 7 and above.

The mean induction delivery interval by various methods of induction and its relation to the mean zero hour cervical score is shown in Table III.

In group II 47.36% cases had to undergo trial interruption in cervical score 1-3 as compared to 7.69% in scores 4-6 and 2.17% in 7 and above.

We found a definite inverse relationship between the cervical score at zero hour and admission/induction delivery interval as seen in Tables IV, V and VI.

TABLE II
Correlation of Cervical Score and Failed induction

Score	1	2	3	4	5	6	7	8
Number	3	3	2	—	1	—	1	—
Percentage	30	33	20	—	10	—	10	—

TABLE III
The Mean Induction Delivery Interval, Method of Induction and its Relation to Zero Hour Cervical Score

Method	Mean IDI	Mean zero hour cervical score
Sweeping	18.33	4.5
ARM	9.54	5.1
Oxytocin	10.71	4.7
PGE ₂	14.50	2.5

This negative co-relation is statistically significant ($p < 0.05$).

TABLE IV
Relationship of Cervical Score at zero Hour with Admission Delivery Interval (Group II)

Cervical score	Mean admission delivery interval
2	13.77 ± 0.74
3	11.04 ± 7.65
4	9.49 ± 3.40
5	8.83 ± 3.42
6	9.22 ± 4.09
7	6.55 ± 3.81
8	5.00 ± 2.70

TABLE V
Relationship of Cervical Score at Zero Hour with Vaginal Delivery and Trial Interruption

Score	1	2	3	4	5	6	7	8	Total
Vaginal	1	6	35	54	47	53	41	13	250
Trial interruption	4	7	14	7	6	1	1	—	40
Total	5	13	49	61	53	54	42	13	290

TABLE VI
Relationship of Cervical Score to Admission/Induction Delivery Interval

Cervical score	Mean time in hours
1	7 ± 0
2	11.59 ± 3.4
3	14.04 ± 7.8
4	10.76 ± 4.87
5	10.24 ± 6.019
6	9.80 ± 5.29
7	6.99 ± 3.73
8	5.00 ± 2.70

Discussion

For successful induction of labour the prelabour biochemical changes occurring in the cervix i.e. ripening are very important (Embrey and Anselmo 1962).

Our study suggested that incidence of failure is 80% if the preinduction score is between 1 and 3. The balance tilts more

TABLE VII
Comparative Figure of Failed Induction with Mean Cervical Score

Author	Percentage of failed induction	Mean cervical score at zero hour
Burnett (1966) (n = 100)	1	8
Friedman <i>et al</i> (1966) (n = 408)	6.6	5.3
Calder Embrey and Hiller (1974) (n = 40)	23	2.3
Present study (1985) (n = 99)	10.11	2.67

towards non-inducibility if the pre-induction cervical score is 1 or 2. Hence there is definite inverse relationship between inducibility and pre-induction cervical score as in Table VII.

Our methods employed for induction of labour showed that for a pre-induction cervical score of 0 to 3 the choice of method should be in order of PGE₂, oxytocin and sweeping, so that labour can be completed within the shortest period

TABLE VIII
Comparative Figures of Mean IDI and Mean Cervix Score at Zero Hour

Method of induction	Author	Mean IDI in hrs	Mean zero hour cervical score
PGE ₂	Calder <i>et al</i> 1974	9.8	5.3
	Calder, Embrey and Trait 1977	14.8 ± 2.7	2.3
	Varma <i>et al</i> 1981	8.7 ± 2.85	2.75 ± 1.06
	Ekman <i>et al</i> 1983	10.6	3.55
	Present study 1985	14.50	2.5
Oxytocin	Friedman <i>et al</i> 1966	11.21 ± 0.36	6.87
	Present study 1985	10.71	4.7
ARM	Calder and Embrey 1977	14.9 ± 5.5	2.3
	Present study	9.55	5.1
Sweeping	Present study 1985	18.33	4.52

of time, whereas artificial rupture of membranes will considerably hasten the labour where the mean cervical score is 5 and above, seen in Table VIII.

Our study showed that modified cervical score (Ulmsten *et al*) is definitely of value for cases of induction of labour, but if employed with the onset of labour it has no predictive value. In early labour if the patients were admitted with low score there was every possibility of their going in for prolonged labour or cervical dystocia. So these patients need evaluation at intervals.

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